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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,652	11/24/2003	Seong-Yong Hwang	21C-0098	4656
23413	7590	12/01/2005	EXAMINER	
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			CHOWDHURY, TARIFUR RASHID	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/720,652	Applicant(s) HWANG ET AL.	
	Examiner Tarifur R. Chowdhury	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 4,5,7-11,15,16,18-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,6,12-14 and 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Mori et al., (Mori), USPAT 5,712,493.**

3. Mori discloses (col. 6, lines 49-56, 63-64; col. 7, lines 1-9, 25-30, 43-49; col. 8, lines 1-7) and shows in Figs. 1-3, a circuit device comprising:

- electrode terminals aligned in a plurality of columns along a first direction parallel to an edge line of a semiconductor substrate and aligned in a plurality of rows along a second direction perpendicular to the first direction; and
- bumps disposed on the electrode terminal.

Mori also discloses (col. 8, lines 1-7) and clearly shows in Fig. 3, that distances between adjacent two electrode terminals aligned in the second direction are uniform.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**6. Claims 6, 12-14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori as applied to claim 1 above.**

7. As to claim 6, using bumps of different shapes such as pentagon, hexagon, octagon or circle when viewed from an upper side of the bumps is common and within the level of ordinary skill in the art and thus would have at least been obvious to optimize the performance of the device.

As to claims 12-14, Mori does not explicitly disclose that the display device used in his invention is an active matrix type. However, it is common and known in the art to use an active matrix display device for several advantages such as to reduce cross talk. Further, it is inherent for an active matrix display device to have a display area on which a gate line, a data line perpendicular to the gate line and a plurality of pixels are formed and a peripheral area on which electrode pads extended from the gate and data lines, the peripheral area being disposed adjacent to the display area and a driving IC connected to the electrode pads.

As to claim 17, Mori discloses the use of anisotropic conductive film to connect the drive IC to the display panel.

**8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mori in view of Katsuma Endo (Katsuma), JP 64-70727.**

9. Mori differs from the claimed invention because he does not explicitly disclose that the bump has a rectangular shape when viewed from an upper side of the bumps.

Katsuma discloses a circuit device having electrode terminals and bumps. He further discloses that by forming bumps in rectangular form earthquake-proof property of the device can be improved (abstract).

Katsuma is evidence that ordinary workers in the art would find a reason, suggestion or motivation to form bumps of a rectangular form.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the device of Mori by forming rectangular bumps for advantages such as improve earthquake-proof property of the device, as per the teachings of Katsuma.

### ***Response to Arguments***

10. Applicant's arguments filed on 09/14/05 have been fully considered but they are not persuasive.

In response to applicant's argument that Mori only discloses arranging the terminals as uniformly as possible along the overall periphery of the driving semiconductor element and fails to disclose that the distances between adjacent electrode terminals are uniform, it is respectfully pointed out to applicant that even

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though the drawings are not drawn to scale it is clear from Fig. 3 of Mori that the distances between adjacent electrode terminals are in fact uniform.

Therefore, the rejection was proper and thus maintained.

11. Applicant's arguments (see pages 8-10, filed 09/14/05), with respect to claims 1-3, 6, 12-14 and 17 have been fully considered and are persuasive. The rejection of claims 1-3, 6, 12-14 and 17 based on Takenaka has been withdrawn.

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R. Chowdhury whose telephone number is (571) 272-2287. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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TRC

November 28, 2005



TARIFUR R. CHOWDHURY  
PRIMARY EXAMINER